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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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QM61/0319

EXAMINER

CIRIC, L

ART UNIT

PAPER NUMBER

3743

DATE MAILED: 03/19/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/978,839

Applicant(s)

Martin et al.

Examiner

Ljiljana V. Ciric

LVC

Group Art Unit

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☒ Responsive to communication(s) filed on Nov 26, 1997

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-18 is/are pending in the application.

Of the above, claim(s) none is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-18 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☒ The drawing(s) filed on Nov 26, 1997 is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ambient air added to the exhaust gas coming from the first furnace [claim 6], undergrate forced draft chambers which are subdivided in the longitudinal and in the transverse direction [claim 12], and the second furnace directly connected with the first furnace [claim 13] must be shown or the features canceled from the claims. No new matter should be entered.
3. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect can be deferred until the application is allowed by the examiner.

Specification

4. The abstract of the disclosure is objected to because it does not avoid the legal phraseology often used in patent claims (i.e., "means") and phrases which can be implied (i.e., "In this process..."). Correction is required. See MPEP § 608.01(b).

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5. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

The following order or arrangement is preferred in framing the specification and, except for the reference to "Microfiche Appendix" and the drawings, each of the lettered items should appear in upper case, without underlining or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) Title of the Invention.
- (b) Cross-References to Related Applications.
- (c) Statement Regarding Federally Sponsored Research or Development.
- (d) Reference to a "Microfiche Appendix" (see 37 CFR 1.96).
- (e) Background of the Invention.
 - 1. Field of the Invention.
 - 2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) Brief Summary of the Invention.
- (g) Brief Description of the Several Views of the Drawing(s).
- (h) Detailed Description of the Invention.
- (I) Claim or Claims (commencing on a separate sheet).
- (j) Abstract of the Disclosure (commencing on a separate sheet).
- (k) Drawings.
- (l) Sequence Listing (see 37 CFR 1.821-1.825).

6. **Content of Specification**

- (a) Title of the Invention: See 37 CFR 1.72(a). The title of the invention should be placed at the top of the first page of the specification. It should be brief but technically accurate and descriptive, preferably from two to seven words.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Reference to a "Microfiche Appendix": See 37CFR 1.96(c) and MPEP § 608.05. The total number of microfiche and the total number frames should be specified.

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- (e) Background of the Invention: The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. This item may also be titled "Best Mode for Carrying Out the Invention." Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

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- (l) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet. (37 CFR 1.52(b)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps.
- (j) Abstract of the Disclosure: A brief narrative of the disclosure as a whole in a single paragraph of 250 words or less on a separate sheet following the claims.
- (k) Drawings: See 37 CFR 1.81, 1.83-1.85, and MPEP § 608.02.
- (l) Sequence Listing: See 37 CFR 1.821-1.825.

7. The disclosure is objected to because of the following informalities, for example: the phrase

Appropriate correction is required.

8. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: "as well as for a device with the characteristics in Claim 12" [page 2, line 7]--in general, the specification should avoid direct references to particular claims; "are burned in addition" [page 4, lines 15-16]; and, "the quantity of waste gas is lower compared to the procedure in which a higher-grade combustible gas is added" [page 4, lines 16-17]--a gas is being compared to a procedure.

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Claim Rejections - 35 U.S.C. § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 5 through 11 and 13 through 18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure as originally filed fails to describe, for example, how the first furnace and the second furnace may be connected “directly” to each other instead of being connected through an exhaust gas flue. The disclosure also fails to provide details regarding the addition of ambient air to the exhaust gas coming from the first furnace. Finally, the disclosure fails to either define exactly what is meant by a “higher-grade combustible gas” or to explain which criteria are used to determine how much of this gas is to be added to the second furnace in accordance with the claimed process (i.e., according to claim 7). Therefore, one skilled in the art would have to perform undue experimentation in order to make and use the invention.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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12. Claims 1 through 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and contain grammatical and idiomatic errors.

Claims 12 through 18, for example, claim both an apparatus and a process for using the apparatus and are therefore indefinite for failing to positively recite the metes and bounds of protection.

There is insufficient antecedent basis for the following limitations in the claims, for example: “the fact” [claim 1, line 2; claim 1, line 5; claim 2, line 1; and other occurrences]; “the charging area” [claim 1, line 4]; “the direction of slag removal” [claim 1, line 6]; “the combustion” [claim 1, line 6]; “the combustible components” [claim 1, line 7]; “the gasification air” [claim 2, line 2]; “the gasification temperature” [claim 3, line 1]; “the air ratio” [claim 4, line 1]; “the resulting gases” [claim 5, lines 1-2]; “the first furnace” [claim 5, lines 2 and 3; claim 6, line 2; claim 13, line 2; and other occurrences]; “the form” [claim 6, line 2]; “the exhaust gas” [claim 6, line 2]; and, “the case” [claim 12, line 2].

With regard to claim 1, it is not clear whether the term “them” in line 4 of the claim refers to the undergrate forced draft chambers or to the waste materials or to some other combination of elements. In general, terms such as “them” and “it” should be avoided for improved clarity.

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With regard to claim 3, it is not clear whether the limitation "the gasification temperature of the waste materials to be gasified is 600 to 850°C" means that this temperature range is a physical property of the waste materials (i.e., the temperature at which these materials must be in order to undergo gasification) or whether this temperature range is the preferred temperature range to which the waste materials are heated as part of the claimed process.

With regard to claim 7, the meaning of the limitation "in accordance with the calorific value of the latter" is not clear.

With regard to claim 9, it is not clear which gases are included or excluded by the limitation "the gases" in line 3 of the claim. Does "the gases" refer to the exhaust gas, the recirculated exhaust gas, the higher-grade combustible gas, the combustion air, oxygen, the gasification air, or some other gas or combination thereof?

The alternative limitations "subdivided in the longitudinal and possibly also in the transverse direction" make the metes and bounds of protection unclear and thereby render claim 12 indefinite.

The term "higher-grade" in claims 7, 8, 15, and 17 is a relative term which renders the claim indefinite. The term "higher-grade" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Thus, as used to describe the combustible gas which is introduced into the second furnace, the term "higher-grade" renders the claims indefinite.

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The above is an indicative, but not necessarily an exhaustive, list of 35 U.S.C. 112, second paragraph, problems. Correction is required of all of the 35 U.S.C. 112, second paragraph problems, whether or not these were particularly pointed out above.

Claim Rejections - 35 U.S.C. § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. As best can be understood in view of the indefiniteness of the claims, claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by *Ban*.

Ban discloses the invention essentially as claimed, including a boiler furnace comprising a fuel charging system 15, a grate 13, subdivided undergrate forced draft chambers 14, an ash or slag removal system, and lines 24-26 for introducing oxygen-containing air into the furnace through the undergrate forced draft chambers 14.

The reference thus reads on the claims.

15. Alternately, as best can be understood in view of the indefiniteness of the claims, claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by *Goff et al.* ('537).

Goff et al. discloses the invention essentially as claimed, including a furnace comprising a fuel charging system 18, a grate 12, subdivided undergrate forced draft chambers 14, an ash or slag removal system 38, and lines 68a-c for introducing oxygen.

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The reference thus reads on the claims.

Claim Rejections - 35 U.S.C. § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Alternately for claim 12 and as best can be understood in view of the indefiniteness of the claims, claims 12 through 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *McRee, Jr.*

McRee, Jr. discloses the invention essentially as claimed, including a first furnace 12, a second furnace 30, a fuel charging system 14, an ash or slag removal system 36, lines for introducing oxygen-containing undergrate air into the first furnace 12, and at least one line for introducing a "higher-grade" fuel to the second furnace 30 via burner 31. Multi-level hearth 18-20 reads broadly on the grate. Air manifolds 25 read broadly on the undergrate forced draft chambers. While *McRee, Jr.* fails to specifically disclose the fuel introduced into the second furnace 30 as being a gas, it is well-known in the art to use "higher-grade" gaseous fuels in supplemental burners such as burner 31 in order to ensure complete combustion of volatile products of combustion in a secondary combustion chamber or furnace such as furnace 30. While *McRee, Jr.* also does not specifically show that the second furnace 30 as also having at least one line for supplying combustion air or one for introducing recirculated waste gas, supplying

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additional air and/or recirculated waste (flue) gases into a secondary combustion chamber or furnace in order to minimize undesirable combustion exhaust is well-known in the art and, absent a disclosure to the contrary, a matter of design choice.

It would therefore have been obvious to one skilled in the art at the time of the invention to have a two-furnace system such as the one disclosed by *McRee, Jr.* which has been modified to have a "higher-grade" gaseous fuel supplied to the second furnace and/or to have either additional combustion air or recirculated waste gas introduced into the second furnace in order to ensure complete combustion and minimize any negative impact to the environment.

Allowable Subject Matter

18. As best can be understood in view of the indefiniteness of the claims, claims 1 through 4 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action, and claims 5 through 11 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, 1st paragraph, set forth in this Office action.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Davies, Jr.* discloses a method for utilizing fuel with staged combustion along a grate supplied with undergrate air. *Reilly* and *Levin* each discloses a gasification furnace in series with a second furnace for additional combustion of combustion byproducts. *Forsberg et al.* teaches

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initiating ignition under oxygen-rich conditions and also teaches that gas produced in a gasification furnace may be utilized in a second furnace.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric, whose telephone number is (703) 308-3925. The examiner can normally be reached on normal business days from 8:30 a.m. to 5:00 p.m. EST/EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus, can be reached on (703) 308-1935. The fax phone number for this Group is (703) 305-3463.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

lvc



March 13, 1999



Ira S. Lazarus
Supervisory Patent Examiner
Group 3700